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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,688	06/12/2001	Jae-Yoel Kim	678-693 (P9800)	4991
28249	7590	06/29/2006	EXAMINER	
DILWORTH & BARRESE, LLP 333 EARLE OVINGTON BLVD. UNIONDALE, NY 11553			TORRES, JOSEPH D	
			ART UNIT	PAPER NUMBER
			2133	

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/879,688	Applicant(s) KIM ET AL.	
	Examiner Joseph D. Torres	Art Unit 2133	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,9,19,20,25 and 29-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,9,19,20,25,29-31,33,34,36 and 38-44 is/are rejected.
- 7) ☒ Claim(s) 32,35 and 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. In view of the amendment filed 05/15/2006, the Examiner withdraws previous objections to the claims:

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8, 9, 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "the sequence of 48 symbols" in line 14. There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation "the sequence of 48 symbols" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Response to Arguments

3. Applicant's arguments filed 05/15/2006 have been fully considered but they are not persuasive.

The Applicant contends, "Although there may be a finite number of patterns, sequences or codes, the 16 position/bit combinations of the 64 available positions/bits are astronomical, and therefore cannot be considered obvious. For example, with respect to determining a puncturing pattern, the total number of combinations to choose from is given by:

$${}_nC_k = \frac{n!}{k!(n-k)!}$$

which produces a total number of possible combinations of 488,526,937,079,580. The amount of experimentation and analysis needed to determine optimal puncturing patterns in and of itself removes the claim element from any unsupported obviousness rejection".

The Examiner introduces three teaching references on puncturing for the purposes of demonstrating the Examiner's position (the Examiner refers the Applicant to MPEP § 2131.01(III) and *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991)). Col. 1, lines 36-40 and col. 9, lines 24-26 in Tong; Wen et al. (US 6744744 B1) teaches that increasing or maximizing the minimum puncturing distance so as to come as close as possible to uniformly puncturing bits is not only desirable but near optimal (Note: maximizing minimum puncturing distance leads to substantially uniform puncturing). Col. 8, lines 15-20 in Lundby; Stein et al. (US 6690734 B1) teaches that uniform distribution of puncturing improves forward error correction.

The Examiner asserts that all of the puncturing patterns in claim 9 are substantially uniformly distributed puncturing patterns with a minimum puncturing distance

maximized to 3. The Examiner asserts that there are relatively few uniformly distributed puncturing patterns with a minimum puncturing distance maximized to 3 and furthermore the experimentation required to determine that maximized minimum puncturing distance sequences are optimal is Prior Art knowledge.

The Applicant contends, "Block coding is defined by a unique sequence, puncturing pattern, etc. in accordance with a coding length. That is, when a coding length is changed, a completely different code is required by a channel that requires changing the entire coding structure".

The Examiner asserts that one of ordinary skill in the art at the time the invention was made would know how to read Table 7-1 on page 154 of Wicker to implement any of the orthogonal codes in column 6 of Table 7-1. Page 152 of Wicker teaches that all Reed-Muller codes are generated from orthogonal sequences in the same way, that is, a 64-bit Reed-Muller code is not a "completely different code". A 64-bit Reed-Muller code is still a Reed-Muller code and is generated using orthogonal sequences just like any other Reed-Muller code regardless of length.

The Examiner disagrees with the applicant and maintains all rejections of claims 1-8, 13 and 14. All amendments and arguments by the applicant have been considered. It is the Examiner's conclusion that claims 1-8, 13 and 14 are not patentably distinct or non-obvious over the prior art of record in view of the references, Citation #4 ("Text proposal regarding TFCI coding for FDD", TSGR1#7(99)D69, August 30-September 3, 1999) in

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view of Citation #7 ("Harmonization impact on TFCI and New Optimal Coding for extended TFCI with Almost no Complexity increase", TSGR#6(99)970, July 13-16, 1999) in further view of Claydon; Anthony Peter John et al. (US 5742622 A, hereafter referred to as Claydon) as applied in the last office action, filed 01/19/2006. Therefore, the rejection is maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citation #4 ("Text proposal regarding TFCI coding for FDD", TSGR1#7(99)D69, August 30-September 3, 1999) in view of Wicker (Stephen B. Wicker, Error Control Systems for Digital Communication and Storage, Prentice-Hall, 1996, pages 149-155).

See the Non-Final Action filed 01/19/2006 for detailed action of prior rejections.

5. Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citation #4 ("Text proposal regarding TFCI coding for FDD", TSGR1#7(99)D69, August 30-September 3, 1999) and Wicker (Stephen B. Wicker, Error Control Systems for Digital Communication and Storage, Prentice-Hall, 1996, pages 149-155).

See the Non-Final Action filed 01/19/2006 for detailed action of prior rejections.

6. Claims 25, 29, 36 and 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citation #4 ("Text proposal regarding TFCI coding for FDD", TSGR1#7(99)D69, August 30-September 3, 1999) and Wicker (Stephen B. Wicker, Error Control Systems for Digital Communication and Storage, Prentice-Hall, 1996, pages 149-155) in view of Citation #7 ("Harmonization impact on TFCI and New Optimal Coding for extended TFCI with Almost no Complexity increase", TSGR#6(99)970, July 13-16, 1999).

35 U.S.C. 103(a) rejection of claims 25, 29, 36 and 38.

See the Non-Final Action filed 01/19/2006 for detailed action of prior rejections.

35 U.S.C. 103(a) rejection of claims 39 and 40.

Figure 2 in Citation #4 teaches an all 1's generator.

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7. Claims 30, 31, 33, 34 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citation #4 ("Text proposal regarding TFCI coding for FDD", TSGR1#7(99)D69, August 30-September 3, 1999) and Wicker (Stephen B. Wicker, Error Control Systems for Digital Communication and Storage, Prentice-Hall, 1996, pages 149-155) in view of Citation #7 ("Harmonization impact on TFCI and New Optimal Coding for extended TFCI with Almost no Complexity increase", TSGR#6(99)970, July 13-16, 1999).

35 U.S.C. 103(a) rejection of claims 30, 31, 33 and 34.

See the Non-Final Action filed 01/19/2006 for detailed action of prior rejections.

35 U.S.C. 103(a) rejection of claims 41 and 43.

Citation #4, Wicker and Citation #7 substantially teaches the claimed invention described in claims 25 and 29 (as rejected above). In addition, Figure 5 in Citation #7 teaches selection of specific Walsh codes and Figure 2 in Citation #4 teaches an all 1's generator.

However Citation #4, Wicker and Citation #7 do not explicitly teach the specific use of the specific Walsh Codes in claims 41 and 43.

The Examiner asserts that one of ordinary skill in the art at the time the invention was made would know that there are only a finite number of 64-bit Walsh codes to select from and hence selection of another finite number of Walsh code is an obvious variation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Citation #4, Wicker and Citation #7 by including use of the specific Walsh Codes in claims 41 and 43. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of the specific Walsh Codes in claims 41 and 43 would have provided a simple decoding procedure because of the natural extension (page 5 of Citation #7).

35 U.S.C. 103(a) rejection of claims 42 and 44.

Since claim 42 substantially recites the same language as in claim 31 the Examiner refer the Applicant to the Non-Final Action filed 01/19/2006 for the rejection of claim 31.

Allowable Subject Matter

8. Claims 32, 35 and 37 objected to as being dependent upon respective rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the respective base claims and any intervening claims.

See the Non-Final Action filed 01/19/2006 for detailed action of prior rejections.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

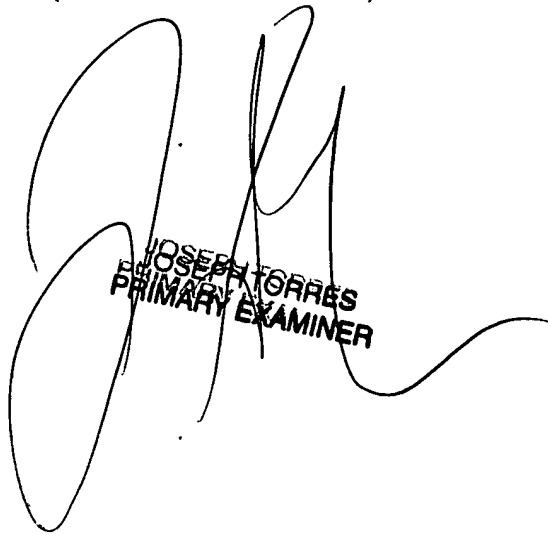
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A large, stylized handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the bottom.

Joseph D. Torres, PhD
Primary Examiner
Art Unit 2133

JOSEPH D. TORRES
PRIMARY EXAMINER